

## Curriculum List (Undergraduate program)

| Classification  | Course No. | Computer Code | Course Name  | Lecture; Lab.; Credit (Assignment) | Semester       | Note |
|-----------------|------------|---------------|--|------------------------------------|----------------|------|
| Mandatory Basic | BS110      | 21.110        | Basic Biology                                      | 3:0:3                              |                |      |
|                 | BS120      | 21.120        | General Biology                                    | 3:0:3                              | Spring, Fall   |      |
| Elective Basic  | BS122      | 21.122        | Diversity of Life                                  | 2:3:3                              | Fall           |      |
| Mandatory Major | BS200      | 21.200        | Biochemistry Experiment                            | 0:9:3(2)                           | Fall           |      |
|                 | BS202      | 21.202        | Cell Biology                                       | 3:0:3(4)                           | Fall           |      |
|                 | BS205      | 21.205        | Biochemistry I                                     | 3:0:3(3)                           | Spring         |      |
|                 | BS208      | 21.208        | Biochemistry II                                    | 3:0:3(3)                           | Fall           |      |
|                 | BS209      | 21.209        | Molecular Biology                                  | 3:0:3(4)                           | Spring         |      |
|                 | BS319      | 21.319        | Cell Biology Experiment                            | 0:9:3                              | Spring         |      |
| Major Elective  | BS223      | 21.223        | Introductory Biotechnology                         | 3:0:3                              | Spring         |      |
|                 | BS232      | 21.232        | Microbiology                                       | 3:0:3(1)                           | Fall           |      |
|                 | BS307      | 21.307        | Physical Chemistry for Life Science                | 3:0:3                              | Spring         |      |
|                 | BS310      | 21.310        | Genome Molecular Biology                           | 3:0:3                              | Fall           |      |
|                 | BS311      | 21.311        | Animal Diversity                                   | 3:0:3                              | Spring         |      |
|                 | BS312      | 21.312        | Evolution  | 3:0:3                              | Fall           |      |
|                 | BS315      | 21.315        | Genetics   | 3:0:3(3)                           | Spring         |      |
|                 | BS316      | 21.316        | Introduction to Epigenetics                        | 3:0:3                              | Spring, Fall   |      |
|                 | BS318      | 21.318        | Developmental Biology                              | 3:0:3                              | Fall           |      |
|                 | BS322      | 21.322        | Biological Engineering                             | 3:0:3(3)                           | Fall           |      |
|                 | BS325      | 21.325        | Microbial and Cell Biotechnology                   | 3:0:3(2)                           | Spring         |      |
|                 | BS326      | 21.326        | Biotechnology Experiment                           | 0:9:3(2)                           | Fall           |      |
|                 | BS332      | 21.332        | Microbial Chemistry                                | 3:0:3(2)                           | Fall           |      |
|                 | BS342      | 21.342        | Enzymology   | 3:0:3(1)                           | Fall           |      |
|                 | BS346      | 21.346        | Animal Behavior                                    | 3:0:3                              | Fall           |      |
|                 | BS355      | 21.355        | Pharmacology                                       | 3:0:3(1)                           | Spring         |      |
|                 | BS357      | 21.357        | Introduction to Neuroscience                       | 3:0:3                              | Fall           |      |
|                 | BS358      | 21.358        | Plant Biology                                      | 3:0:3                              | Spring         |      |
|                 | BS365      | 21.365        | Environmental Microbiology                         | 3:0:3(1)                           | Fall           |      |
|                 | BS367      | 21.367        | Biomolecular Chemistry                             | 3:0:3                              | Spring         |      |
|                 | BS371      | 21.371        | Animal Cell Culture and Engineering                | 3:0:3                              | Spring         |      |
|                 | BS413      | 21.413        | Experiments for Genetics and Developmental Biology | 0:9:3                              | Spring         |      |
|                 | BS414      | 21.414        | Ecology  | 3:0:3                              | Spring or Fall | ◎    |
| BS415           | 21.415     | Genomics      | 3:0:3  | Spring, Fall                       | ◎              |      |
| BS417           | 21.417     | Eco-Evo-Devo  | 3:0:3  | Spring, Fall                       | ◎              |      |

◎: Course mutually recognized by undergraduate and graduate programs

| Classification | Course No. | Computer Code             | Course Name                          | Lecture; Lab.; Credit (Assignment) | Semester     | Note     |
|----------------|------------|---------------------------|--------------------------------------|------------------------------------|--------------|----------|
| Major Elective | BS431      | 21.431                    | Virology                             | 3:0:3(3)                           | Spring       | ◎        |
|                | BS433      | 21.433                    | Molecular Biology of Gene Regulation | 3:0:3(3)                           | Spring       | ◎        |
|                | BS435      | 21.435                    | Bio-Imaging                          | 3:0:3                              | Spring       | ◎        |
|                | BS442      | 21.442                    | Stem Cell Biology                    | 3:0:3                              | Fall         | ◎        |
|                | BS450      | 21.450                    | Neuroscience II                      | 3:0:3                              | Fall         | ◎        |
|                | BS452      | 21.452                    | Immunology                           | 3:0:3                              | Spring       | ◎        |
|                | BS453      | 21.453                    | Physiology                           | 3:0:3                              | Spring       | ◎        |
|                | BS454      | 21.454                    | Introduction to Structural Biology   | 3:0:3(1)                           | Fall         | ◎        |
|                | BS456      | 21.456                    | Behavioral Physiology                | 2:3:3                              | Spring, Fall | ◎        |
|                | BS458      | 21.458                    | Synthetic Biology                    | 3:0:3                              | Fall         | ◎        |
|                | BS462      | 21.462                    | Environmental Biotechnology          | 3:0:3(1)                           | Fall         | ◎        |
|                | BS463      | 21.463                    | Genetic Engineering                  | 3:0:3(3)                           | Spring       | ◎        |
|                | BS465      | 21.465                    | NanoBioTechnology                    | 3:0:3                              | Fall         | ◎        |
|                | BS467      | 21.467                    | Biomaterials                         | 3:0:3                              | Spring       | ◎        |
|                | BS469      | 21.469                    | Scientific communication             | 3:0:3                              | Spring       | ◎        |
|                | BS481      | 21.481                    | Topics in Life Science I             | 1:0:1                              |              | ◎        |
|                | BS482      | 21.482                    | Topics in Life Science II            | 2:0:2                              |              | ◎        |
|                | BS483      | 21.483                    | Topics in Life Science III           | 3:0:3                              |              | ◎        |
| BS484          | 21.484     | Topics in Life Science IV | 3:0:3                                |                                    | ◎            |          |
| BS485          | 21.485     | Topics in Life Science V  | 3:0:3                                |                                    | ◎            |          |
| BS486          | 21.486     | Topics in Life Science VI | 3:0:3                                |                                    | ◎            |          |
| Research       | BS490      | 21.490                    | B.S. Thesis Research                 | 0:6:3                              |              | Required |
|                | BS495      | 21.495                    | Specified Research                   | 0:6:1                              |              | Elective |
|                | BS496      | 21.496                    | Seminar                              | 1:0:1                              |              | Elective |

◎: Course mutually recognized by undergraduate and graduate programs

## Curriculum List (Graduate program)

| Classification | Course No. | Computer Code               | Course Name                                 | Lecture; Lab.; Credit (Assignment) | Semester     | Note |
|----------------|------------|-----------------------------|---|------------------------------------|--------------|------|
| Elective       | BS501      | 21.501                      | Bioassay Standards                          | 3:0:3                              | Spring       | ◎    |
|                | BS507      | 21.507                      | General Clinical Medicine                   | 3:0:3                              | Fall         | ◎    |
|                | BS512      | 21.512                      | Biostatistics                               | 3:0:3(4)                           | Fall         | ◎    |
|                | BS515      | 21.515                      | Behavioral Genetics                         | 3:0:3                              | Spring       | ◎    |
|                | BS516      | 21.516                      | Advanced Genetics                           | 3:0:3                              | Spring       | ◎    |
|                | BS518      | 21.518                      | Chemical Genomics&Medicinal Systems Biology | 3:0:3(1)                           | Fall         | ◎    |
|                | BS521      | 21.521                      | Cancer Biology                              | 3:0:3                              | Spring       | ◎    |
|                | BS524      | 21.524                      | Advanced Molecular Biology                  | 3:0:3(3)                           | Fall         | ◎    |
|                | BS525      | 21.525                      | Gene Expression                             | 3:0:3(3)                           | Spring       | ◎    |
|                | BS526      | 21.526                      | Molecular Virology                          | 3:0:3(3)                           | Fall         | ◎    |
|                | BS528      | 21.528                      | Advanced Epigenetics                        | 3:0:3                              | Spring, Fall | ◎    |
|                | BS531      | 21.531                      | Advanced Microbiology                       | 3:0:3(2)                           | Spring       | ◎    |
|                | BS532      | 21.532                      | Applied and Environmental Microbiology      | 3:0:3(1)                           | Spring       | ◎    |
|                | BS536      | 21.536                      | Environmental Toxicology                    | 3:0:3(2)                           | Fall         | ◎    |
|                | BS538      | 21.538                      | Microbial Genomics                          | 3:0:3(4)                           | Fall         | ◎    |
|                | BS541      | 21.541                      | Advanced Cell Biology                       | 3:0:3                              | Spring       | ◎    |
|                | BS542      | 21.542                      | Immunotherapy                               | 3:0:3                              | Fall         | ◎    |
|                | BS543      | 21.543                      | Advanced Neurobiology                       | 3:0:3(1)                           | Fall         | ◎    |
|                | BS547      | 21.547                      | Neural Development                          | 3:0:3                              | Spring       | ◎    |
|                | BS549      | 21.549                      | Biology of Metabolism                       | 3:0:3                              | Fall         | ◎    |
|                | BS552      | 21.552                      | Advanced Fermentation Technology            | 3:0:3(2)                           | Fall         | ◎    |
|                | BS553      | 21.553                      | Omics Biology                               | 3:0:3                              | Spring       | ◎    |
|                | BS554      | 21.554                      | Advanced Biological Engineering             | 3:0:3(3)                           | Fall         | ◎    |
|                | BS562      | 21.562                      | Protein Design                              | 3:0:3                              | Fall         | ◎    |
|                | BS564      | 21.564                      | Bioanalytical Technology                    | 3:0:3                              | Fall         | ◎    |
|                | BS566      | 21.566                      | Bioconjugate Chemistry                      | 3:0:3                              | Fall         | ◎    |
|                | BS571      | 21.571                      | Advanced Animal Cell Engineering            | 3:0:3                              | Spring       | ◎    |
|                | BS582      | 21.582                      | Food Engineering I                          | 3:0:3(2)                           | Fall         | ◎    |
|                | BS584      | 21.584                      | Novel Drug Delivery Systems                 | 3:0:3(3)                           | Fall         | ◎    |
|                | BS585      | 21.585                      | Advanced Developmental Biology              | 3:0:3(6)                           | Spring       | ◎    |
| BS586          | 21.586     | Plant Developmental Biology | 3:0:3                                       | Fall                               | ◎            |      |
| BS588          | 21.588     | Cell Signaling              | 3:0:3(6)                                    | Fall                               | ◎            |      |

◎: Course mutually recognized by undergraduate and graduate programs

| Classification | Course No. | Computer Code                       | Course Name                                    | Lecture; Lab.; Credit (Assignment) | Semester     | Note |
|----------------|------------|-------------------------------------|--|------------------------------------|--------------|------|
| Elective       | BS589      | 21.589                              | Cancer Genetics                                | 3:0:3                              | Spring, Fall | ◎    |
|                | BS611      | 21.611                              | Advanced Molecular Cell Biology I              | 3:0:3(3)                           | Spring       |      |
|                | BS612      | 21.612                              | Advanced Molecular Cell Biology II             | 3:0:3(3)                           | Fall         |      |
|                | BS613      | 21.613                              | Cellular and Molecular Immunology              | 3:0:3                              | Fall         |      |
|                | BS620      | 21.620                              | Mechanism of biological molecules              | 3:0:3                              | Fall         |      |
|                | BS622      | 21.622                              | Enzyme Chemistry                               | 3:0:3                              | Fall         |      |
|                | BS624      | 21.624                              | Protein Chemistry and Engineering              | 3:0:3                              | Fall         |      |
|                | BS626      | 21.626                              | Nucleic Acid Biochemistry                      | 3:0:3(3)                           | Fall         |      |
|                | BS628      | 21.628                              | Biological Membranes                           | 3:0:3                              | Fall         |      |
|                | BS631      | 21.631                              | Microbial Genetics                             | 3:0:3(2)                           | Spring       |      |
|                | BS632      | 21.632                              | Advanced cancer biology                        | 3:0:3                              | Spring       |      |
|                | BS633      | 21.633                              | Microbial Physiology                           | 3:0:3(2)                           | Spring       |      |
|                | BS643      | 21.643                              | Neurobiology of memory                         | 3:0:3                              | Spring       |      |
|                | BS662      | 21.662                              | Bioseparation Technology                       | 3:0:3                              | Fall         |      |
|                | BS664      | 21.664                              | Numerical Methods for Biochemical Engineering  | 3:0:3                              | Fall         |      |
|                | BS711      | 21.711                              | Bioinformatics                                 | 3:0:3(3)                           | Fall         |      |
|                | BS713      | 21.713                              | Human Genomics                                 | 3:0:3(2)                           | Spring       |      |
|                | BS720      | 21.720                              | Selected Topics in Biochemistry                | 3:0:3                              | Spring, Fall |      |
|                | BS722      | 21.722                              | Biochemistry of Carcinogenesis                 | 3:0:3(3)                           | Fall         |      |
|                | BS723      | 21.723                              | Cell Signaling Networks                        | 3:0:3                              | Spring       |      |
|                | BS730      | 21.730                              | Selected Topics in Microbiology                | 3:0:3                              | Spring, Fall |      |
|                | BS740      | 21.740                              | Selected Topics in Cell Biology                | 3:0:3                              | Spring, Fall |      |
|                | BS742      | 21.742                              | Molecular Cell Biology                         | 3:0:3(2)                           | Fall         |      |
|                | BS750      | 21.750                              | Selected Topics in Biotechnology               | 3:0:3                              | Spring, Fall |      |
|                | BS760      | 21.760                              | Selected Topics in Environmental Biotechnology | 3:0:3                              | Spring       |      |
|                | BS781      | 21.781                              | Special Topics in Food Science & Technology    | 3:0:3                              | Spring       |      |
|                | BS791      | 21.791                              | Scientific Writing in English                  | 3:0:3(4)                           | Spring       |      |
|                | BS801      | 21.801                              | Advanced Topics in Life Science I              | 1:0:1                              |              |      |
| BS802          | 21.802     | Advanced Topics in Life Science II  | 2:0:2  |                                    |              |      |
| BS803          | 21.803     | Advanced Topics in Life Science III | 3:0:3  |                                    |              |      |
| Research       | BS960      | 21.960                              | M.S. Thesis Research                           |                                    | Spring, Fall |      |
|                | BS965      | 21.965                              | Independent Study in M.S.                      |                                    | Spring, Fall |      |
|                | BS966      | 21.966                              | M.S. Seminar                                   | 1:0:1                              | Spring, Fall |      |
|                | BS980      | 21.980                              | Ph.D. Thesis Research                          |                                    | Spring, Fall |      |
|                | BS986      | 21.986                              | Ph.D. Seminar                                  | 1:0:1                              | Spring, Fall |      |
|                | BS990      | 21.990                              | Graduate Student Seminar                       | 1:0:1                              | Spring, Fall |      |

◎: Course mutually recognized by undergraduate and graduate programs

## Alternative Course List

| Alternative courses in the department |                           |                         |                               |                                      |                      |
|---------------------------------------|---------------------------|-------------------------|-------------------------------|--------------------------------------|----------------------|
| Category                              | Courses currently offered |                         | Courses not currently offered |                                      |                      |
|                                       | Course no.                | Course title            | Course no                     | Course title                         | Remark               |
| Undergraduate                         | BS319                     | Cell Biology Experiment | BS319                         | Cell Biology and Genetics Experiment | course title changed |

| Alternative courses offered by other departments |                                   |                |                                      |                |                            |
|--|-----------------------------------|----------------|--------------------------------------|----------------|----------------------------|
| Category   | Courses offered by the department |                | Courses offered by other departments |                |                            |
|  | Course no.                        | Course no.     | Course no.                           | Course no.     | Remark                     |
| Undergraduate                                    | BS202                             | Cell Biology   | BiS202                               | Cell Biology   | Bidirectional substitution |
| Undergraduate                                    | BS208                             | BiochemistryII | BiS208                               | BiochemistryII | Bidirectional substitution |